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labourers. I think from the reefs we may fairly average the produce at 2 ounces, if not more, to the ton, and that is far higher than the general result on other gold-fields; and I may say that the prospects, so far as I have tried, are considerably better than any I have seen (in an experience of over 17 years) amongst the principal gold-fields of the world. The climate is extremely salubrious, and the new mining law recently passed is nearly all that can be desired. Every article of foreign production necessary for or connected with mining operations is permitted to enter the country free of duty, and mines are excepted from all taxes for 20 years. A royalty of 5 per cent. is claimed by the Government on all gold or other minerals exported. Any person so disposed may enter upon any portion of the Republic they like, and search for minerals or gold, being required only to give a fair compensation to the owner of the land for any damage actually sustained by the miners' work. Whilst staying in the capital, I was sent upon two exploring expeditions after coal; but though the formations of the country around appear to be against such a probability, I discovered good graphite and jet, also hematite iron-ore to the westward of Montevideo, and to the east fine-grained marbles, white, flesh-coloured, and green; and rock rich in galena! Also large and strong lodes of pyrites and sulphide of copper associated with gold, evidently from the quartz and slate reefs that traverse them. These metalliferous lodes extend for many miles, giving unmistakeable evidences at the surface of the riches hidden below. Here ancient workings have been abandoned evidently from excess of water, which is abundant, and from paucity of capital. These are situated only about 90 miles from the seaport of Maldonado, and would, I feel sure, yield large results if properly and vigorously prosecuted.

XVII.—*Notes on the Map of the Peninsula of Sinai.** By the Rev. F. W. HOLLAND.

THE Map of the Peninsula of Sinai does not profess to be more than a sketch-map, illustrating the general features of the southern portion of that interesting country. In the winter of 1867-8, it was my intention to have spent some months in thoroughly exploring and mapping that portion of the Peninsula which lies between Suez and Jebel Musa, west and south of the mountain ranges of Jebel er Rahah, and Jebel et Tih, and for this purpose I received a grant of instruments from the Royal

* In illustration of Mr. Holland's Memoir in the 'Journal,' vol. xxxviii., p. 237.

Geographical Society. But, shortly before starting from England, I heard of the project of the Ordnance Survey of that same district, which was originated by the late Rev. Pierce Butler, and has since been brought to a successful issue by Captains Wilson and Palmer, of the Royal Engineers, under the direction of Sir Henry James.

It seemed useless for me to undertake a work, which was soon to be accomplished so far better by professional engineers; but knowing, from former experience, how exceedingly faulty the existing maps of the Peninsula were, both with regard to the delineation of its leading features and its nomenclature, I felt that I should be doing good service by making a general preliminary exploration of the country, tracing out its main wadys, which form the roads, fixing the positions of the most prominent mountains, and determining more accurately the Arabic names.

To effect this it was necessary to travel on foot, and to associate as much as possible with the Arabs; but there was little difficulty in doing this in a country where the inhabitants so gladly welcome all travellers. A short account of my wanderings will be found in the 'Journal' of last year. It only remains for me now to state as briefly as possible how the information contained in the map now presented was arrived at.

Starting from Suez, I kept down the coast as far as the hot springs of Jebel Hummâm. Thence retracing my steps I turned up Wady Ghurundel, and passing round the back of the Hummâm Range, descended again to the sea-coast by the Wady Taiyibeh. From this point, I kept along the plain of El Morkhah, until I reached the mouth of Wady Feiran, which I followed up to the Wady es Sheikh; and this wady led me to the convent of St. Catherine, at the foot of Jebel Musa.

Making this my head-quarters for some weeks, I traced up the principal wadys, and ascended all the highest mountain-peaks in the immediate neighbourhood, taking bearings with my azimuth compass, and sketching-in the surrounding country; when I had thus roughly mapped this district, I proceeded to take longer excursions accompanied by an Arab, whom I had selected as my companion on account of his intelligence and accurate knowledge of the country. By these excursions, on which I was generally absent some four or five days, I was enabled to explore a larger area; and I traversed the mountain ranges east and south of Jebel Musa, discovering the large plain of Senned, and ascending Jebel Umm Alawi, Jebel Abû Ma'sud, Jebel Umm Shaumer, and other mountains—from all of which I took sketches and bearings of the country around. My Arab and myself, laden with our blankets and guns, could not carry provisions for more than five days, so that, when I found it

necessary to be absent for a longer time, I engaged another Arab with his camel to accompany us. Thus provided, I next proceeded to make longer excursions. First striking southwards, I crossed the Wady Rahabel, and passing over between Jebel Fera and Jebel Turfa reached Jebel eth Thebt, which had never before been visited. From the summit of this mountain, I obtained an extensive view over the south-western portion of the Peninsula. I afterwards crossed over a somewhat difficult pass to the north of Jebel Humr, and bearing eastward followed down Wady Ethmed till it was joined by Wady Kyd, one of the most fertile wadys in this region. I then struck northwards again up Wady Kyd, and crossing the Fera el Adhal, a remarkable basin enclosed by rounded mountains, I passed to the east of Jebel Fersh Sheikh el Arab, and so returned to the convent. After a few days' rest I again set out to explore the south-eastern portion of the Peninsula. I followed down Wady Nush to the sea coast at Dahab, with the intention of keeping along the coast from this point to Sherm; but the weather being stormy I found it impossible to pass under Jebel el Araby, the only path, which is said to be an ancient paved road, being rendered dangerous by the waves. I therefore turned inland again, and passing at the back of this mountain range found an easy road across the heads of several wadys, which led me by Wady Melhade to its junction with Wady Kyd and Wady Ethmed, south of which it takes the name of Wady Ab Orta. Here I stopped to ascend Jebel Umm Zayrey, which appeared to be the most prominent mountain in this neighbourhood, and from the summit of which I was enabled to sketch in with tolerable accuracy the position of the surrounding mountains and wadys. Following down Wady Ab Orta to the coast, I continued my course southwards until I reached Wady Khushab, obtaining water on my way from the wells of Sherm. Here again I made a short stay to visit Ras Mohammed, and on starting northwards I followed the upper road to Jebel Sahara, and from the summit of this mountain again traced out the course of the neighbouring wadys, and obtained bearings, which connected my work with my sketches from Jebel eth Thebt and Jebel Sahara. I continued to follow the upper road until I reached Wady Budr, which led me down to the plain of El Kaa, crossing which I arrived at the village of Tor; the route, which is marked in the map as running down the plain of El Kaa, near the coast, and also the inland route between Sherm and Wady Kyd, I had twice traversed during former visits to the Peninsula.

While staying at Tor I visited Jebel Nakkûs, and Jebel Mokatteb; I then crossed El Kaa, and ascending Wady Hebran and Wady Solaf, returned to Jebel Musa. I afterwards made an

excursion to Jebel Serbal, and ascended by Wady er Rymm the southern peak, and passed round the western side of the mountain, visiting on my way the secluded valley of Sigillye with its ruined monasteries.

On my return to the convent, I determined to explore next the north-eastern district. Skirting the northern side of the Plain of Senned, I followed down Wady Zuthera to the north of Jebel Habshi, and, crossing the easy passes of Klyif and Bayu, reached the sandstone district of Wady Maytoura. On arriving at Wady Kenneh I bore westwards to the curious rocks of Hudeibat el Hejaj, called by Dr. Stanley, "Herûnet Haggay." I had previously journeyed down Wady Zal to this point, and was anxious to visit Ain Huthera, which has been identified with the Hazeroth of the Bible. From this point, following down Wady Ghuzâleh, I arrived at Wady el Ain es Suffla. Here I again turned northwards, and traced up this latter wady till the road led me across a curious pass to Wady Zelleger, at the bottom of which are situated the springs of Wady el Ain el Alya, the upper Wady el Ain. The existence of an upper and lower Wady el Ain has not before, I believe, been noted. Continuing westwards up Wady Zelleger I reached the elevated and fertile plateau of Zenanik, and visited the wells and ruins of Ain el Akhdar. Thence I proceeded northwards past Jebel Shayger, and up Wady Sik to the Nukb Mureikhy, and, after ascending the various peaks of Jebel Odjuech, I returned to the convent.

I afterwards paid a visit to Serâbit el Khadim, taking the usual road by Wady Berah and Wady Burk. After spending some days in exploring the mines and inscriptions at Serâbit el Khadim and Wady Nukb, I followed down Wady Baba, and so reached Wady Mughârah and Wady Mokatteb, where I also spent some days.

On my final return to Suez I took the road which leads up Wady Sîdri and Wady Mugraffe, from Wady Mokatteb to Serâbit el Khadim, and paid a visit to Jebel Sarbut-el-Gemel and Wady Humr.

These were my main routes, and they can easily be followed on the map by the red line which marks them. It has been impossible to mark the many smaller excursions which I have made, or to record in the map all the numerous names which I collected of the less important mountains and wadys. But this imperfect sketch of my routes will give some idea of the method in which the map has been made, and the amount of dependence that may be placed upon its accuracy. It is a record of what I saw and sketched on the spot. I always travelled with my compass, watch, and note-book, in my hand,

sketching the country roughly in as I walked along, and correcting my calculations by dead reckoning, and, as often as I was able, by ascending some prominent mountain, and taking careful bearings to other well-known peaks. The sea-coast having been accurately surveyed, and the position of Jebel Musa determined, I was enabled to fix from these pretty accurately the position of other points.

Want of food and water sometimes compelled me to push on more rapidly than I should otherwise have done, especially during the latter part of my excursion to Ras Mohammed. The anxiety of having an empty water-skin, and the necessity of searching for water as I went along, somewhat confused my reckonings between Jebel Sahara and Wady Budr, but, on the whole, the map presents a faithful record of the main features of the Peninsula. It will be seen, on comparison, that it differs much from former maps, especially in the region south and east of Jebel Musa. The range of Jebel Umm Alawi, and the large plain of Senned, are new features, and the conventional straight mountainous ridge running down from Jebel Catherine to Ras Mohammed has disappeared.

The remarkable barrier of mountains extending eastwards across the Peninsula from the south of Jebel Serbal has also never before been so clearly defined. But the special point which I have endeavoured to illustrate has been the drainage of the country, which is very curious, and has not been accurately represented in any previous map.

This map, as I stated at the outset, does not profess to be more than a sketch; but, since making it, another visit to the Peninsula of Sinai, in connection with the Ordnance Survey Expedition, has enabled me, in many points, to test its accuracy, and I can state with confidence that it correctly represents the leading features and most remarkable characteristics of that country, which, from its historical interest and physical peculiarities, has, and will always continue to attract so much interest.






JEBEL OJMEH

29°

30'

А К А В А

OF



THE PENINSULA OF MOUNT SINAI

A SKETCH
FROM OBSERVATIONS ON THE GROUND
BY THE REV F. W. HOLLAND. M.A.

London:
Stanford's Geographical Establishment.
1868.

*The whole of the mountain region South & East
of Jebel Catharine is original.*

Scale of Statute Miles.

0 5 10 15 20

Author's Main Routes.

33°

30'



